

# Cold Bay Health Clinic



## Alaska Rural Primary Care Facility

### Assessment and Inventory Report

**Final**

**May 11, 2004**



City of Cold Bay



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## **APPENDIX A: DEFICIENCY TABLES & PHOTO LOGS**

## **APPENDIX B: GENERAL PHOTOS**

## **1.0 INTRODUCTION**

The Anna Livingston Memorial Clinic, located in Cold Bay, Alaska, operates between the hours of 8 am to 6 pm and is owned and operated by the city. The exact date of construction is unknown, but the facility is assumed to be at least 15 years old. The clinic is run by five regular staff (health aides, administration and maintenance) with medical physicians visiting on a rotating basis. The small population of Cold Bay actually belies the patient load of the clinic. Nelson Lagoon and False Pass rely on the clinic for mid-level medical care, and acts as an intermediate step between their village health aide and an Anchorage doctor's visit. The Cold Bay airport is also a major transportation stop. As such, the clinic serves many transient patients from outside the community. The commercial fishing industry, as well as the Coast Guard, brings emergencies to the clinic for immediate medical attention while awaiting transportation to a larger facility. So aside from serving the community in Cold Bay the Anna Livingston Memorial Clinic is an important facility in the entire region.

### **1.1. CONDITION SURVEY DATE AND PARTICIPANTS**

The inspection took place on May 11-12, 2004. The inspection team consisted of Ryan Wrocklage, Intern Architect, from Larsen Consulting Group (LCG); Robert Jernstrom, Mechanical Engineer from Jernstrom Engineering; and Leigh Hubbard, Project Engineer from Alaska Native Tribal Health Consortium (ANTHC).

### **1.2. CONDITION SURVEY GOALS**

The inspection team focused on two primary tasks. First, identify current code deficiencies; and secondly, identify improvements that would extend the facility's serviceable life for years to come. The facility was assessed with respect to current fire and life safety codes, as well as accessibility standard compliance. Inspection of the existing building components and systems were based on visual, nondestructive methods. As a result, concealed construction or interiors of pipes were not inspected. No guarantee is made or implied that all code violations and/or worn or unsafe systems have been identified in this report. Second, since the Clinic may require relocation in the future, the area was examined for possible future site locations to suit the needs and desires of the clinic.

### **1.3. GENERAL CODE ISSUES**

The facility condition survey was reviewed for compliance with the latest adopted edition of the following building codes:

#### State of Alaska Fire and Life Safety Regulations

IBC 2000 .....	International Building Code
UMC 2000 .....	Uniform Mechanical Code
UPC 2000 .....	Uniform Plumbing Code
NFPA 70 .....	National Electric Code

NFPA 25 .....	Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
NFPA 72 .....	Fire Alarm Code
NFPA 101 .....	Life Safety Code
ADA.....	Americans Disabilities Act

#### **1.4. DEFICIENCY CODES**

Deficiencies are categorized according to the following deficiency codes to allow the work to be prioritized for funding. The codes are as follows:

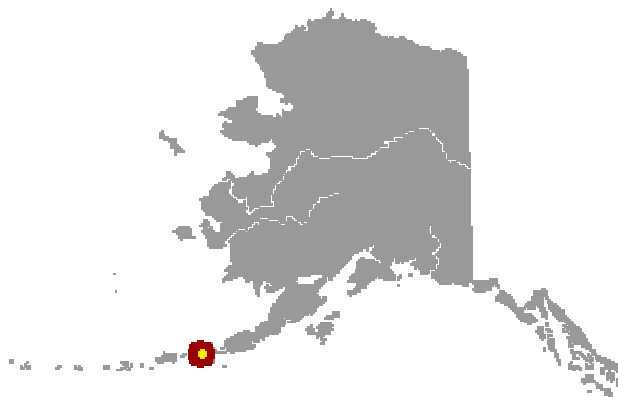
- 01 Fire and Life Safety:** \_\_\_\_\_ These deficiencies identify areas where the facility is not constructed or maintained in compliance with provisions of the state mandated life safety aspects of building codes including the Uniform Building Code, International Building Code, The Uniform Fire Code, NFPA 101, The Uniform Mechanical and Plumbing Codes and The National Electrical Code. Deficiencies could include inadequacies in fire barriers, smoke barriers, capacity and means of egress, door ratings, safe harbor, and fire protection equipment not covered in other deficiency codes.
- 02 Disability Access Deficiencies:** \_\_\_\_\_ The items with this category listing are not in compliance with the Americans with Disabilities Act. This could include non-compliance with accessibility in parking, entrances, toilets, drinking fountains, elevators, telephones, fire alarm, egress and exit access ways, etc.
- 03 Architectural M & R:** \_\_\_\_\_ Items affecting the architectural integrity of the facility, materials used, insulation, vapor retarder, attic and crawlspace ventilation, general condition of interiors, and prevention of deterioration of structure and systems.
- 04 Structural Deficiencies:** \_\_\_\_\_ These are deficiencies with the fabric of the building. It may include the foundations, the roof or wall structure, the materials used, the insulation and vapor retarders, the attic or crawl space ventilation and the general condition of interior finishes. Foundation systems are included in this category.

- 05 Mechanical Deficiencies:** \_\_\_\_\_ These are deficiencies in the plumbing, heating, ventilating, air conditioning, or medical air systems, interior mechanical utilities, requiring maintenance due to normal wear and tear that would result in system failure.
- 06 Electrical Deficiencies:** \_\_\_\_\_ These are deficiencies with normal or emergency power, electrical generating and distribution systems, interior electrical and communications utilities, fire alarm systems, power systems and communications systems within a building that should be repaired or replaced on a recurring basis due to normal wear and tear that would otherwise result in system failure.
- 07 Utilities M & R:** \_\_\_\_\_ This category is used for site utilities for incoming services to facilities that are required for the building to be fully operational. Deficiencies may include sewer and water lines, water wells, water tanks, natural gas and propane storage, electric power and telecommunications distribution, etc.
- 08 Grounds M & R:** \_\_\_\_\_ Real property grounds components that should be replaced on a recurring basis due to normal wear and tear. Deficiencies with respect to trees, sod, soil erosion, lawn sprinklers, parking, bridges, pedestrian crossings, fences, sidewalks & roadways, and site illumination etc. are considerations.
- 09 Painting M & R:** \_\_\_\_\_ Any painting project that is large enough to require outside contractors or coordination with other programs.
- 10 Roof M & R:** \_\_\_\_\_ Deficiencies in roofing, and related systems including openings and drainage.
- 11 Seismic Mitigation:** \_\_\_\_\_ Deficiencies in seismic structural items or other related issues to seismic design, including material improperly anchored to withstand current seismic requirements effect. The elements under consideration should include the cost incidental to the structural work like architectural and finishes demolition and repairs.

## 1.5. DEFICIENCY IDENTIFICATION

Deficiencies are referenced by discipline, first two letters of the community and then deficiency number. For example: Aco01 breaks down as follows, "A" indicates architecture as the discipline, "co" indicates Cold Bay as the community and "01" indicates the deficiency number referenced. A table, grouping all deficiencies by discipline is located in Appendix A. Deficiencies with associated photographs are referenced in green. A photo log of deficiencies is provided, with photos referenced by deficiency number.

## 1.6. COMMUNITY PROFILE



### Cold Bay

#### Information Obtained from the Alaska Department of Community and Economic Development (DCED) Community Database Online

<b>Current Population:</b>	95 (2003 State Demographer Estimate)
<b>Incorporated Type:</b>	2nd Class City
<b>Borough Located In:</b>	Aleutians East Borough
<b>School District:</b>	Aleutians East School District
<b>Regional Native Corporation:</b>	Not Applicable

**Location:** Cold Bay is located in the Izembek National Wildlife Refuge at the western end of the Alaska Peninsula. It lies 634 miles southwest of Anchorage, and 180 miles northeast of Unalaska. It lies at approximately 55.185830° North Latitude and -162.72111° West Longitude. (Sec. 01, T058S, R089W, Seward Meridian.) Cold Bay is located in the Aleutian Islands Recording District. The area encompasses 54.4 sq. miles of land and 16.6 sq. miles of water.

**History:** Archaeological sites dating to the last ice age indicate the area around Cold Bay was once inhabited by a large Native population, and was used by European hunters and trappers throughout the 19th century. Izembeck Lagoon was named in 1827 by Count Feodor Kutke, after Karl Izembeck, a surgeon aboard the sloop "Moller." During World War II, Cold Bay was the site of the strategic air base Fort Randall. At that time, the airport was the largest in the state, with a 10,000' runway. The City was incorporated in 1982.

**Culture:** Cold Bay services the fishing industry and houses a number of federal offices with services focused on Aleutian transportation and wildlife protection. Subsistence and recreational fishing and hunting are a part of the local culture. Up to 70,000 Canada geese migrate through Cold Bay in the fall. Izembeck Lagoon offers the world's largest eelgrass beds, feeding grounds for more than 100,000 brant during their spring and fall migrations.

**Economy:** State and federal government and airline support services provide the majority of local employment. Because of its central location and modern airport, Cold Bay serves as the regional center for air transportation on the Alaska Peninsula, and as an international hub for private aircraft. Cold Bay also provides services and fuel for the fishing industry. Two residents hold commercial fishing permits.

**Facilities:** Water is supplied by one well and stored in a 213,000-gallon tank. Most residents are connected to the piped water and sewer system. A few homes have individual wells and septic systems. The sewage treatment plant can process up to 45,000 gallons a day. Residents transport their own refuse to the landfill, located 1.5 miles north of the City. A feasibility study will determine whether to clean up or replace the old landfill.

**Transportation:** A State-owned 10,415' long by 150' wide paved and lighted runway with a 5,126' long by 150' wide paved crosswind runway, an FAA Flight Service Station, and a seaplane base are available. Cold Bay is a regional transportation center, and provides scheduled flights to surrounding communities. A \$12 million runway rehab project should be completed by 2005. The community has a dock, but wants to develop a breakwater, boat harbor and boat launch. Marine cargo services are available monthly from Seattle, but not from Anchorage. The State Ferry operates bi-monthly from Kodiak between May and October. A local priority is to construct a 27-mile road to King Cove, through the Izembek National Wildlife Refuge. The \$14 million road was approved by the Corps of Engineers in January 2004. There are approximately 40 miles of local gravel roads.

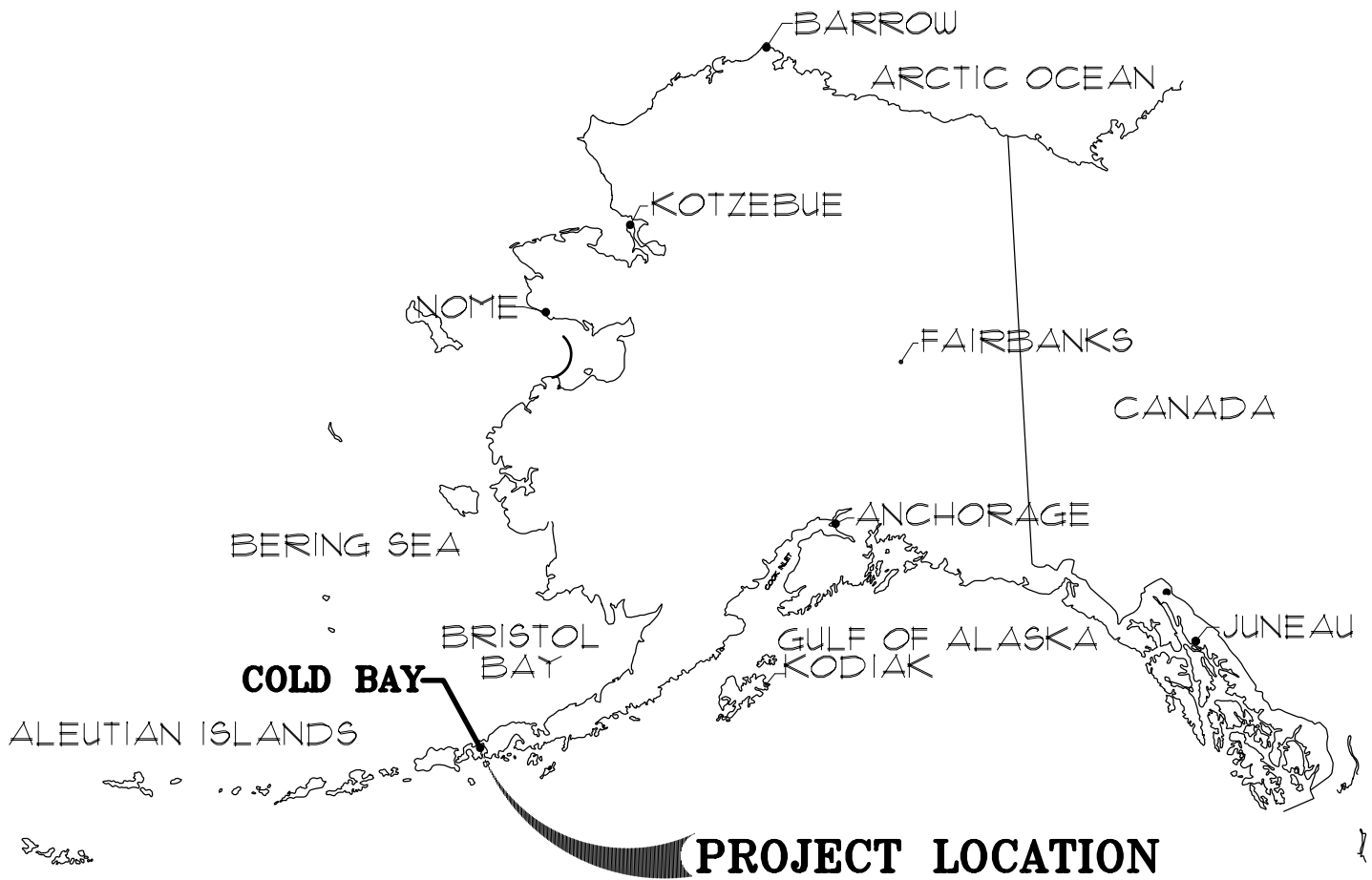
**Climate:** The city has a maritime climate, with temperatures ranging from 25 to 60. The average rainfall is 36 inches, including annual snowfall of 55 inches. Wind speeds of 30 MPH are common for Cold Bay.

## **1.7. EXISTING AND CONCEPTUAL MODIFICATION DRAWINGS**

Following this section we have attached drawings we have been able to identify, find or create as part of this report.

- C1 Location
- C2 Existing Site Plan
- A1 Existing Floor Plan
- A2 Existing Wall Section
- A3 Small Prototypical Clinic
- A4 Proposed Plan – Scheme 1
- A5 Proposed Plan – Scheme 2





## LOCATION

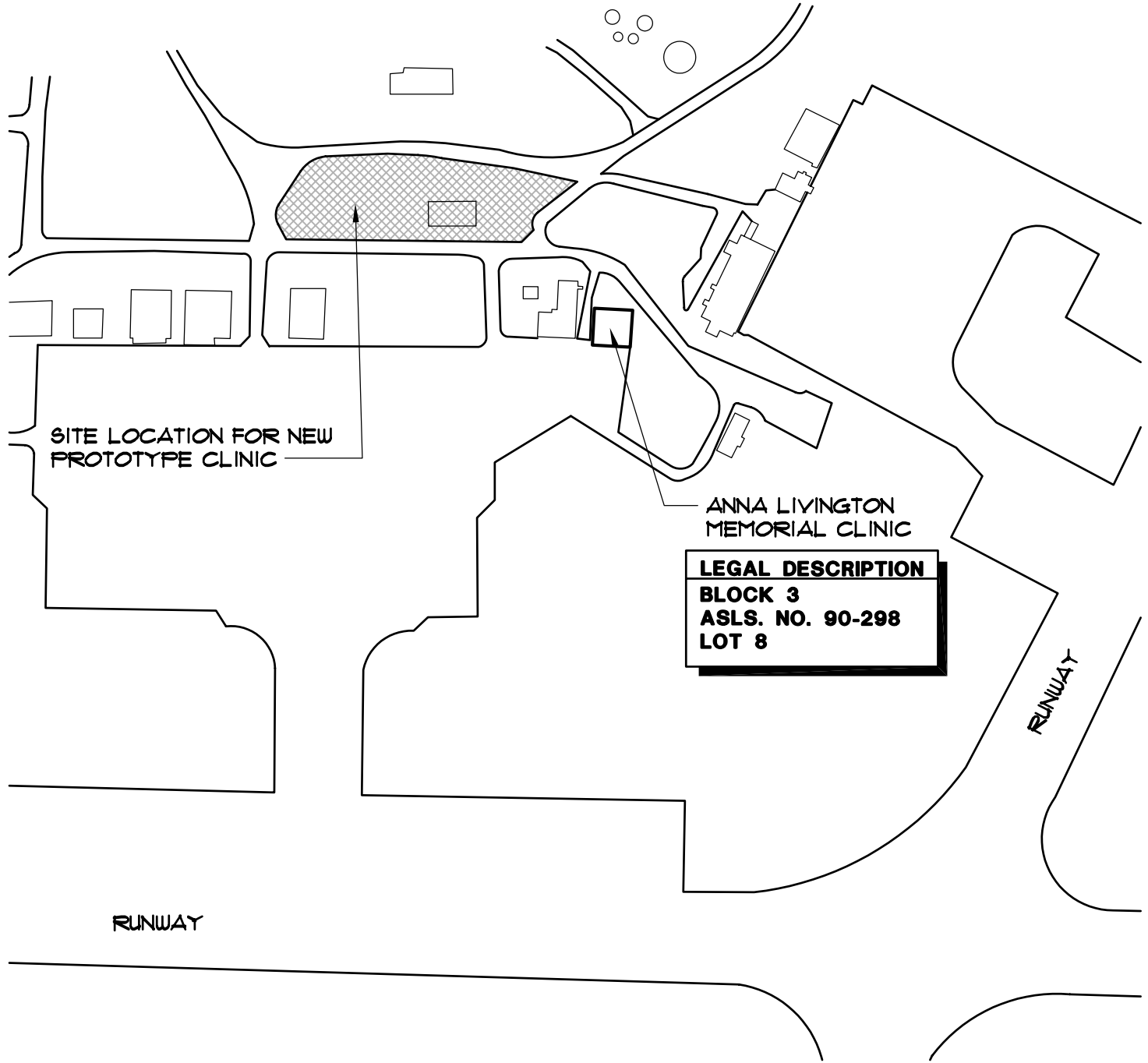
SCALE: NT8



FACILITY ASSESSMENT AND  
INVENTORY SURVEYS  
FOR COLD BAY  
ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

DESIGNED BY:  
DRAWN BY: RW  
CHECKED BY: WS  
DATE: 02/25/04  
SCALE: NT8  
JOB NO: 22338

SHEET  
C1



# EXISTING SITE PLAN

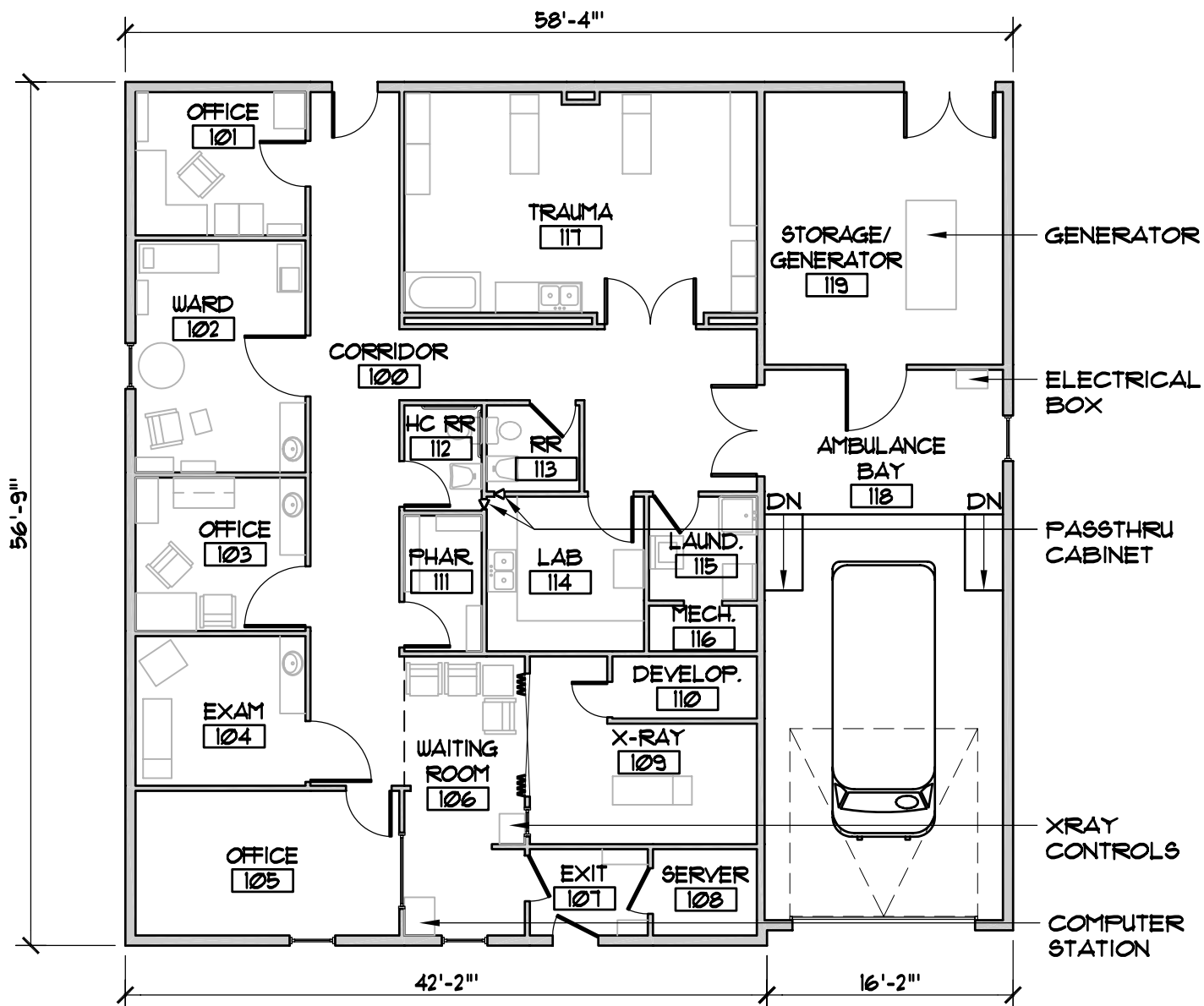
SCALE: 1" = 250'-0"



FACILITY ASSESSMENT AND  
INVENTORY SURVEYS  
FOR COLD BAY  
ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

DESIGNED BY:  
DRAWN BY: RW  
CHECKED BY: WS  
DATE: 02/25/04  
SCALE: 1" = 250'-0"  
JOB NO: 22338

SHEET  
C2



# EXISTING FLOOR PLAN

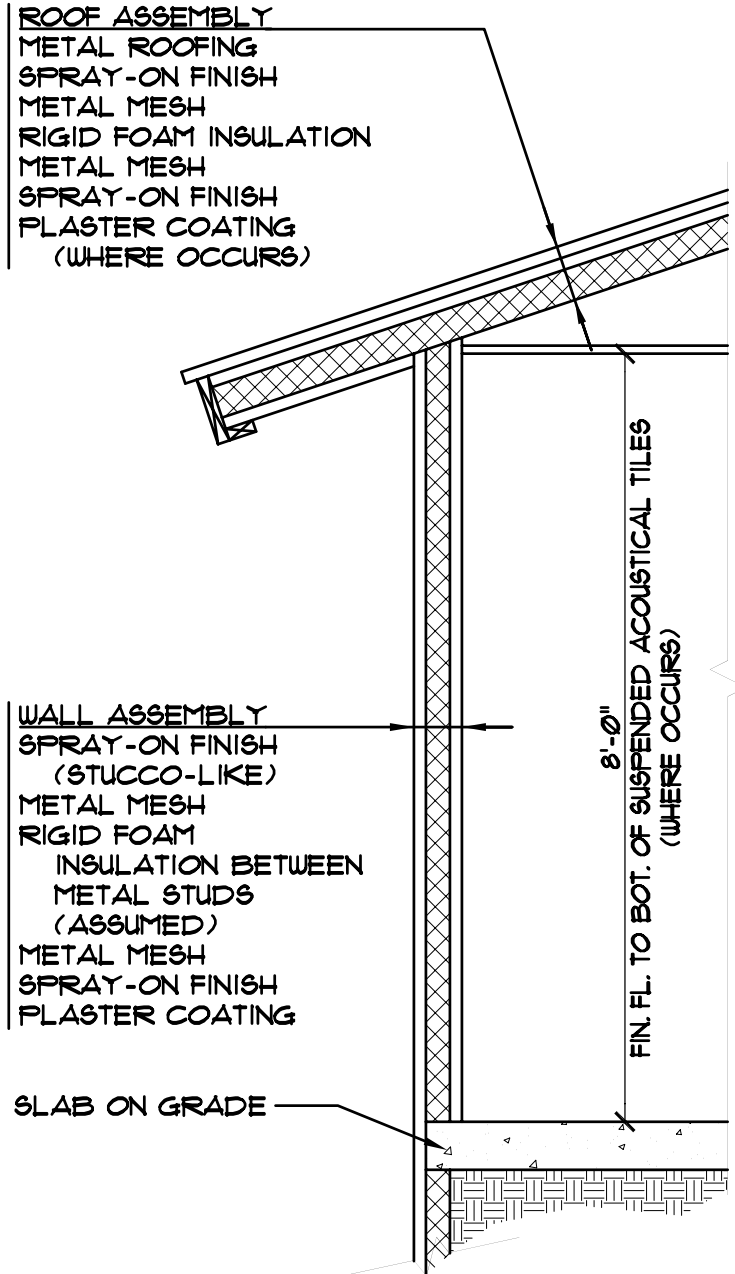
SCALE: 3/32" = 1'-0"



FACILITY ASSESSMENT AND  
INVENTORY SURVEYS  
FOR COLD BAY  
ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

DESIGNED BY:  
DRAWN BY: RUW  
CHECKED BY: WBS  
DATE: 02/25/04  
SCALE: 3/32" = 1'-0"  
JOB NO: 22338

SHEET  
A1



## EXISTING WALL SECTION

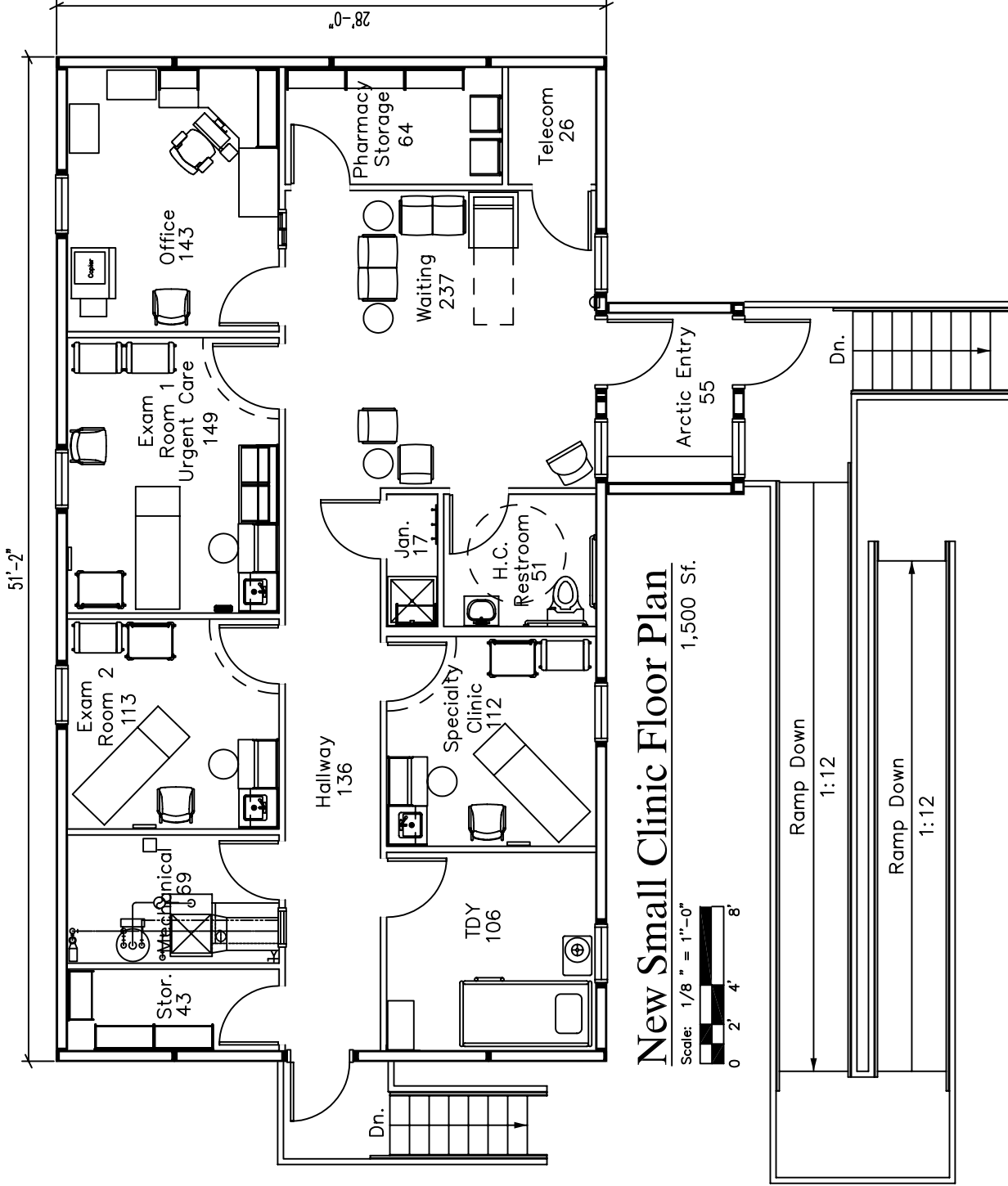
SCALE 1/2" = 1'-0"



FACILITY ASSESSMENT AND  
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 FOR COLD BAY  
 ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

DESIGNED BY:  
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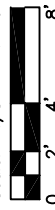
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 A2



## New Small Clinic Floor Plan

1,500 Sf.

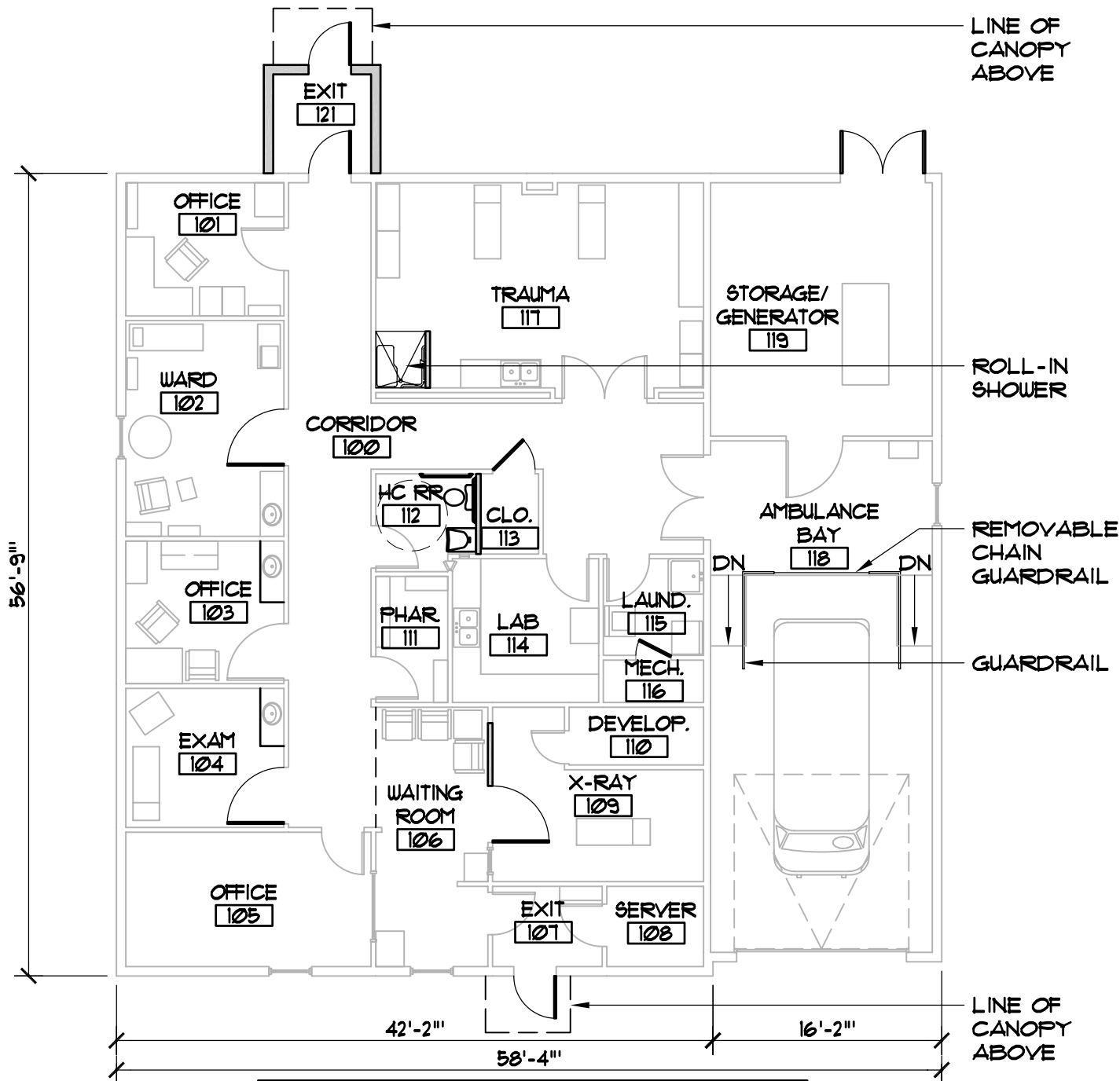
Scale: 1/8" = 1'-0"



# ALASKA PRIMARY CARE FACILITY CODE & CONDITION SURVEYS For The Denali Commission

Sheet Contents  
NEW SMALL  
CLINIC FLOOR PLAN

Drawn DT Company	Date 11/28/2001	Sheet #: A3
Checked G.L.W.	Job No. 010602	



# PROPOSED PLAN - SCHEME 1

SCALE: 3/32" = 1'-0"

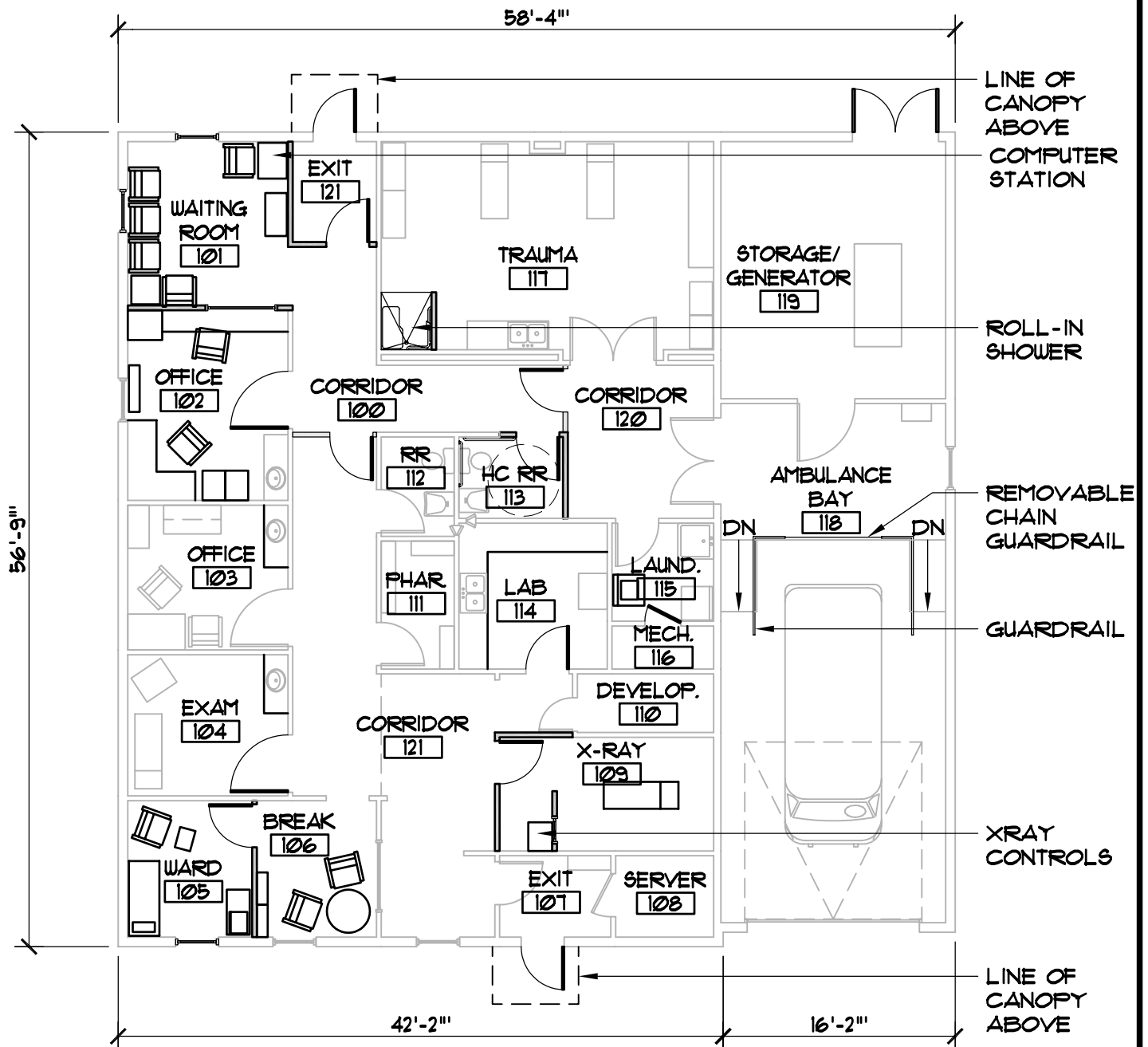


FACILITY ASSESSMENT AND  
INVENTORY SURVEYS  
FOR COLD BAY

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

DESIGNED BY: RW  
DRAWN BY: RW  
CHECKED BY: WS  
DATE: 02/25/04  
SCALE: 3/32" = 1'-0"  
JOB NO: 22338

SHEET  
A4



## PROPOSED PLAN - SCHEME 2

SCALE: 3/32" = 1'-0"



FACILITY ASSESSMENT AND  
INVENTORY SURVEYS  
FOR COLD BAY

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

DESIGNED BY: RW  
DRAWN BY: RW  
CHECKED BY: WS  
DATE: 02/25/04  
SCALE: 3/32" = 1'-0"  
JOB NO: 22338

SHEET  
A5

## **2.0 CIVIL / SITE CONDITIONS**

### **2.1. SITE / CAMPUS DESCRIPTION**

The Cold Bay Anna Livingston Memorial clinic currently has a very desirable location. The site has direct, vehicular access to both the road and the airstrip. The airstrip entrance side includes the garage door for the ambulance and affords the clinic immediate access to patients arriving or leaving by plane or helicopter. This unique site arrangement is very beneficial to the clinic; however, it has possible future complications. The Alaska Department of Transportation is expanding the current runways which will cause the clinic to lie within the airfields runway restriction line. The roadside entrance has sufficient parking and acts as the access for Cold Bay citizens. The parking, however, is unmarked and the required designation for a handicap accessible parking space is missing. As is common in Cold Bay, the building is slab on grade. With one exception, where poor soil compaction is causing soil erosion, the current grade slopes effectively sheds water away from the building.

### **2.2. SITE UTILITIES**

Power: The electrical service is provided by G&K (532-2407). The service pole is located near the facility with an abandoned overhead drop. The new service is derived from a pad mounted 3 phase transformer with the service voltage of 240V/120V 3 phase 4 wire. The system was noted to be a delta system however from the voltage measured from each phase to ground it appears to actually be a 208Y/120V 3 phase 4 wire system. The metering is provided on the building via a direct metered combination meterbase main disconnect.

Telecommunication Systems: The telephone service enters the building underground and is routed to a cross connect protection block adjacent to the electrical service entrance. The facility has 7 lines to the facility.

Fuel Oil Requirements and Capacity: The fuel supply for the clinic is from a 1,100 gallon aboveground fuel tank. The tank is relatively new. The fuel oil storage tank is located adjacent to the building and a minimum of 5 ft. from the clinic as required by code. This fuel oil storage tank does not meet code requirements for piping, venting and valving. The fuel oil supply piping used is soft copper tubing with flare fittings.

Water Distribution: The water system plumbing is typical ½" and ¾" copper distribution piping to the clinic exam sinks and toilet fixtures. The city water system provides the water needs of the clinic.

Sewage Disposal: City sanitary sewer provides the needs of the clinic.



### 3.0 ARCHITECTURAL FINDINGS

The Cold Bay Anna Livingston Memorial Clinic is a single story structure, slab on grade, comprising a total area of approximately 3,294 square feet. The clinic accommodates all major functions including emergency/trauma room, an ambulance bay, a general exam room, x-ray room, a temporary ward room, administrative areas and other miscellaneous support rooms. The location of the clinic, with direct access to the airstrip, is highly beneficial and considered a requirement by the current clinic employees.

It is believed the structure was originally built around 1990. The materials and construction of the building appear to be of good quality. The main request from Mayor Maxwell for the clinic has been new exterior doors. The current metal doors and frames are not working properly. Doors lack proper seals and during rains with heavy winds, which is common, water gets pushed into the clinic and pools in front of the doors. This has caused severe damage to the current metal doors and frames. The windows and the overhead door for the Ambulance Bay [RM#118] are for the most part well maintained. The exterior finish is in good condition with only minor repairs required. The metal roof is in considerably good condition, with minor rusting in a few areas, and missing edge flashing. Aesthetically the facility is very pleasing.

The interior is clean and very appealing with the exception of a few areas of damaged vinyl tile flooring and missing wall base. Some spaces could be kept tidier through more effective storage. The building's finished materials on walls (plaster) and ceilings (plaster and minimal suspended acoustical tiles) are suitable for the clinic; however, the floor material (vinyl tile flooring) is not. The use of tile flooring allows the possibility of bacterial and/or fungal growth between and beneath the tiles. Also, based on the approximate age of the building, the vinyl tiles could contain asbestos. Testing should be performed to detect the presence of asbestos. The clinic is rather silent and there appears to be no noise attenuation problems except for X-ray [RM#119] which makes use of only an accordion door. Aesthetically the interior feels comfortable and clean.

Overall the clinic's facilities adequately fulfill the needs of the community. All of the medial rooms are sufficient in size with the exception of the current accessible restroom [RM#112] which is not ADA compliant. The administrative rooms are likewise adequate, with the exception of the lack of secure records storage and the Pharmacy [RM#111] door and cabinets remaining unlocked. One of the exam rooms has been converted into an Office [RM#103]. This has not adversely affected the clinic functions and provides another office that was deemed necessary; however, the clinic also does not currently have a Specialty/Dental exam room. The Ward [RM#102] does include a bed that could be used for overnight patients or traveling health professionals, however, the room is also currently being used as a break room with refrigerators and food storage which does not allow for adequate facilities for neither overnight patients nor professionals. Additionally, there are no Arctic Entries, no emergency eye wash in the facility and the clinic can be functionally improved to provide patients more privacy during x-rays by changing the functions of a few rooms. (See Proposed Plans A4 & A5)

There were no record drawings available to review original construction of roof, wall and floor assemblies. The following building assemblies are derived from non-invasive site observations.

### **3.1. ROOF ASSEMBLY**

Roof assembly is from exterior to interior as follows:

- ✦ Metal Roofing
- ✦ Pre-Manufactured Sandwich Roofing Panel
- ✦ Metal Mesh
- ✦ Spray-on Finish
- ✦ Suspended Acoustic Tile (Where Occurs)

### **3.2. WALL ASSEMBLY**

Exterior wall assembly components are listed from interior to exterior as follows:

- ✦ Spray-on Finish
- ✦ Metal Mesh
- ✦ Pre-Manufactured Sandwich Wall Panel
- ✦ Metal Mesh
- ✦ Spray-On Finish

Typical interior wall assembly components are as follows:

- ✦ Plaster Coating
- ✦ Spray-on Finish
- ✦ Metal Mesh
- ✦ Pre-Manufactured Sandwich Wall Panel
- ✦ Metal Mesh
- ✦ Spray-on Finish
- ✦ Plaster Coating

### **3.3. FLOOR ASSEMBLY**

Floor assembly listed from interior to exterior are as follows:

- ✦ Vinyl Tile Flooring
- ✦ Concrete Slab on Grade

### 3.4. BUILDING CODE ANALYSIS

<b>Applicable Codes</b>	American with Disabilities Act (ADA) International Building Code (IBC) – 2000 Edition International Fire Code (IFC) - 2000 Edition
<b>Construction Type</b>	VB (Combustible Wood, No Fire Resistance and No Sprinklers)
<b>Occupancy Classification</b>	R-3 Residential (IBC Section 310 & 101.2)
<b>Allowable Square Footage</b>	R-3 Occupancy - Unlimited 3 Stories Allowable, 1 Actual (IBC Table 503 and 302.3.3)
<b>Actual Building Square Footage</b>	First Floor: 3,294 Total Square Footage: 3,294 (OK)

### 3.5. LIFE SAFETY ISSUES

There are a number of life safety issues in the clinic, but all are easily rectified. Both main entrances to the building are missing required protection from rain and snow. Also the exterior doors do not have appropriate panic hardware. The concrete walk along the front of the building has a grading problem at the Storage/Generator [RM#119] end. The ramp approach at the rear of building does not have a required landing before the door and the steep drop off along the side warrants a guardrail. A few rooms have obstructions hindering effective exiting. There is no door between the Laundry [RM#115] and Mechanical [RM#116] rooms. The Ambulance Bay [RM#118] ramps and platform require guardrails and the door into the Corridor [RM#100] has an illegal threshold height. Entrance into the Storage/Generator [RM#119] room from the Ambulance Bay is blind because the only light switch is near the exterior door. There is also improper storage in both the Corridor and Laundry rooms.

### 3.6. AMERICANS WITH DISABILITIES ACT

The building conflicts with only a few of the required ADA design guidelines.

The entire facility is lacking lever hardware for both interior and exterior doors, and several of the door approaches lack ADA required clearances from the room side: [RM#s101, 102, 103, 104 and 114].

In the accessible restroom (HC RR RM#112) there is not sufficient room provide for wheelchair turning radius and the water closet is 20" away from the wall while the requirement is 18".

The Trauma room [RM#117] shower is not accessible and needs to be removed for the installation of an ADA compliant shower.

ADA restroom and general issues are addressed in the Proposed Floor Plan Renovation. (See Proposed Plans A4 & A5)

## **4.0 CIVIL / STRUCTURAL FINDINGS**

Without destructive investigation into enclosed assemblies, review of a building insofar as its structural integrity is based on what is not seen. In other words, if there was a structural issue there would usually be telegraphic signs such as cracked wall board, truss separation at the top plate, foundation cracking or jacking, un-level floors etc. The Cold Bay Clinic shows no such signs of structural failures or concerns. The materials used are appropriate for the site and construction appears sound.<sup>1</sup>

### **4.1. GRADING**

The site has a visible slope that appears to be working effectively. There is no apparent damage to the structure that would have been caused by poor or improper drainage. In one location, under the concrete walk in front of the Storage/Generator [RM#119], the fill beneath the concrete walk appears to have been eroded, most likely from rainfall.

### **4.2. FOUNDATION**

Foundations show some minor evidence of settlement or movement. There is some cracking along the foundation stemwalls at one wall. There is also some minor deterioration of the stemwall reinforcing due to poor construction. The reinforcing was placed too close to the surface and has become exposed over the years.

### **4.3. FLOOR FRAMING**

The framing consists of a concrete slab on grade and appears to be of sound construction and is suitable for the intended use.

### **4.4. ROOF FRAMING**

The roof framing is a pre-manufactured insulated fiber glass skin panel type construction with a cementitious surface coating. The roof panels appear to be suitable for the application. No visible distressing was noted.

### **4.5. WALL FRAMING**

The interior and exterior walls of the building are also a pre-manufactured insulated fiberglass skin panel type construction with a cementitious surface coating. The wall panels appear to be suitable for the application. No visible distressing was noted. The wall support system appears to be functioning properly.

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<sup>1</sup> A thorough structural evaluation was not conducted for this report. The items contained in this section of the report are general observations by the Architect. A thorough detailed report of structural connections and deficiencies will be necessary when a remodel of the existing clinic is designed.

## **5.0 MECHANICAL FINDINGS**

### **5.1. PLUMBING**

#### **5.1.1. *Domestic Water Systems***

Domestic cold water is used for all normal plumbing uses like lavatories, toilets, exam room sinks, etc. The water pressure at the building is at least 40 psi. The city water service serves the water needs of the clinic. Piping for domestic water in the building is Type L copper with solder fittings and is typical ½" and ¾" copper distribution piping to the clinic exam sinks and toilet fixtures. There appears to be no problems with the taste and color in the drinking water.

#### **5.1.2. *Sanitary Soil, Waste and Vent***

The sanitary soil, waste, and vent system serves all the plumbing fixtures throughout the clinic. Pipe sizing has been determined to include a 4" main from the clinic, and 4" or 2" branch lines serving the fixtures.

#### **5.1.3. *Fixtures***

Plumbing fixtures in the clinic are generally barrier free and meet the ADA standards. This applies to the water closet and lavatory.

#### **5.1.4. *Water Heater***

The electric water heater is installed in the furnace room. Access to the water heater is limited. The water heater is not operating correctly and will need to be replaced.

#### **5.1.5. *Storm Drains***

The existing roof does not use roof drains for rainfall drainage. The pitched metal roof sheds water off to the sides of the clinic.

### **5.2. FIRE SUPPRESSION**

#### **5.2.1. *Fire Dampers***

The active air handling system in the facility is not in a rated enclosure; therefore, fire dampers are not required or installed.

#### **5.2.2. *Ionization Smoke Detectors***

With the active air handling system in the facility is less than 2,000 cfm, ionization smoke detectors are not required.

#### **5.2.3. *Sprinkler System***

There is no sprinkler system in the clinic, nor is one required by code.

### **5.3. HEATING SYSTEMS**

#### **5.3.1. *Fuel Storage and Distribution***

The fuel supply for the clinic is from a 1,100 gallon aboveground fuel tank. The tank is relatively new. The fuel oil storage tank is located adjacent to the building and a minimum of 5 ft. from the clinic as required by code. This fuel oil storage tank does not meet code requirements for piping, venting and valving. The fuel oil supply piping used is soft copper tubing with flare fittings.

#### **5.3.2. *Heat Distribution System***

There is no boiler system in the clinic. All heat is provided by the forced air furnace.

### **5.4. VENTILATION SYSTEM**

#### **5.4.1. *System***

The air handling system in the facility provides the heating needs of the clinic. All areas have supply air grilles connected to the underground ductwork from the furnace. The ambulance garage and storage room have a separate fuel oil fired unit heater for heating.

#### **5.4.2. *Exhaust Air***

The darkroom and x-ray room do not have an accessible operable window nor is there any ventilation system in the clinic to provide ventilation air to these spaces as required by code. The existing restroom exhaust fans are operational, but the fans are ducted into the attic space and not ducted outside as required by code. There is limited exhaust air for the darkroom. There is no exhaust air for the janitor's closet or laboratory.

### **5.5. COOLING SYSTEMS**

There is no cooling system provided for the clinic.<sup>1</sup>

### **5.6. CONTROL SYSTEMS**

The furnace temperature controls (thermostat) for the clinic seems to operate correctly and provide the required control. The furnace is operated using its operating controller. The furnace fires to maintain the room temperature setpoint. This controller was operating as required.

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<sup>1</sup> Neither mechanical refrigeration nor outside air.

## 6.0 ELECTRICAL FINDINGS

### 6.1. ELECTRICAL DISTRIBUTION

Electrical Service: The electrical service is provided by G&K (532-2407). The service pole is located near the facility with an abandoned overhead drop. The new service is derived from a pad mounted 3 phase transformer with the service voltage of 240V/120V 3 phase 4 wire. The system was noted to be a delta system however from the voltage measured from each phase to ground it appears to actually be a 208Y/120V 3 phase 4 wire system. The metering is provided on the building via a direct metered combination meterbase main disconnect.

The service later is routed from grade into the bottom of the NEMA 3R, combination meter base with Service Entrance Rated 200 Amp main disconnect. The service lateral appears to be (4) 3/0 Al conductors.

The service disconnect feeds the two branch circuit panels with #2 to possible #2/0 AWG copper conductors in parallel protected by the 200 amp main breaker as best that can be determined from the photos. The cover was not removed for the main circuit breaker by the mechanical engineer so sized and exact configuration is unknown. However, no scenario that can be derived appears to be a code compliant installation.

A nominal amount of current flow of 1.2 amps was measured on the ground conductor which may indicate a neutral to ground bond error in the system has occurred.

Distribution System: The distribution system is composed of a primary branch circuit panel which sub feeds a second branch circuit panel via a 100A/3 pole circuit breaker. A wiring gutter is installed below the panels for circuit routing. All of the ground conductors are terminated by a single NM cable connector clamp located inside the gutter in violation of NEC requirements. The panels also have type NM cable installed in patient care areas in Violation of NEC 517. The panels do not have adequate NEC required working clearances due to storage located in front of the panel. The neutral for the sub-panel is routed through a knock with no connector or bushing protecting the conductors in not installed in raceway per NEC requirements.

The Service also directly feeds a 1 phase 240/120 disconnect for the X-ray system with it appears to be #2/0 Cu from the 200 amp main circuit breaker.

Open junction boxes were noted in the crawl space, attic spaces, and mechanical rooms.

GFCI protected receptacles were not installed at many countertops. Although not a code requirement in all cases it is considered to be a good design practice for safety at locations where sinks are located.

Bonding and Grounding: The service grounding electrode system consisted of a #6 AWG grounding electrode conductor routed to a single ground rod located below the main disconnect and no bond to the water service was located in the photos and therefore I suspect it may not be actually installed. The neutral to ground bond is most likely installed in the main disconnect however no photo was available to verify.

The telephone service is bonded to the main grounding electrode routed to the ground rods.

## **6.2. LIGHTING**

General: The facility mostly consist of surface fluorescent fixtures using 2 lamp T12 technology. The covers are missing on some of the fixtures and many fixtures are not working.

Emergency Lighting: The emergency lighting for the facility is typically provided by unit mounted wall pack bug eye type units. However, the units are not installed per code requirements and additional units should be added. One unit has the lamp hanging on the wiring and should also be corrected.

Exit Signage: No exit signs are provided. The egress illumination signage should be upgraded to meet current IBC requirements.

Exterior Lighting: Exterior lighting is provided by wall pack high pressure sodium fixtures. They did not appear to be controlled by a photocell based on the available photos and notes. The fixtures are showing there age with the diffusers beginning to yellow causing a depreciating light output.

## **6.3. FIRE ALARM SYSTEM**

No fire alarm system is installed for the facility. A lone single station smoke detector is installed and tested functional.

## **6.4. TELECOMMUNICATION**

The telephone service enters the building underground and is routed to a cross connect protection block adjacent to the electrical service entrance. The facility has 7 lines to the facility.

The computer data system is installed through out the facility.



## **7.0 CONCLUSION AND RECOMMENDATIONS**

### **7.1. SUMMARY OF ARCHITECTURAL FINDINGS**

Architectural findings and analysis were focused on life safety/code issues, Americans with Disabilities Act compliance and facility space functions/efficiencies specifically related to the operations of the clinic.

There are several life safety issues pertaining to this facility. Most are defined in their respective structural, mechanical and electrical sections of this report.

In regards to ADA compliance, this facility is in violation of several ADA design guidelines. The restroom does not fully comply, nor does the shower facility in Trauma [RM#117]. Maneuvering space, inappropriate fixtures, and lack of adequate door hardware account for many of the obstacles encountered by the handicapped. However, with modifications, as shown in the proposed renovations (See Proposed Plans A4 & A5), all of these issues can be addressed for full compliance.

The functional upgrades recommended in this report will help alleviate ADA concerns as well as upgrade inappropriate fixtures and correct inefficient uses of space. The overall “architectural” condition of the facility has been maintained and kept clean and does not adversely affect the delivery of effective health care.

### **7.2. SUMMARY OF CIVIL / STRUCTURAL FINDINGS**

The structure does not have any significant visible evidence of deterioration or failure. It appears to be sound and of quality construction which requires only minor maintenance.

A thorough structural evaluation was not conducted for this report. A thorough detailed report of structural connections and deficiencies will be necessary when a remodel of the existing clinic is designed.

The site has no visible drainage issues.

### **7.3. SUMMARY OF MECHANICAL FINDINGS**

The clinic facility has a few problems in the mechanical systems. These problems range from small plumbing issues to code related hazards. Any remodel or renovation to this facility will require an upgrade to the furnace systems. Some of this work can be done in stages, but there are health issues that should be address now. A summary of the major and minor problem areas are as follows:

#### **Plumbing**

- ✦ The restroom has been provided with plumbing fixtures that do meet the ADA codes or UPC Table 14-1 for barrier free fixtures.
- ✦ The existing water heater is undersized and the temperature controls do not work as required by code.

## **Fire Protection**

There are no fire protection issues affecting the operation of the clinic.

## **Heating & Ventilation Systems**

- ✦ The clinic does not have operable windows nor is there any ventilation system in the clinic to provide ventilation air to the clinic spaces as required by code.
- ✦ The existing restroom exhaust fans are operational, but the fans are ducted into the attic space and not ducted outside
- ✦ There is no exhaust air for the janitor's closet or laboratory and limited exhaust air for the darkroom.
- ✦ The existing clothes dryer does not have an exhaust duct to the outside.
- ✦ The existing emergency generator does not have any outside air openings for combustion air or ventilation of the room when it is operating.
- ✦ The furnace is installed without the proper clearances for inspections, maintenance, and making repairs difficult.
- ✦ Severe corrosion on the furnace stack may cause premature failure of this system. The stack cap on the roof is also missing.
- ✦ There currently is one combustion air openings for the furnace installed and not according to code

## **Fuel Systems**

- ✦ Provide the required piping, venting, and valving revisions for the existing aboveground fuel tank to meet current EPA requirements.

## **Cooling Systems**

There are no cooling issues affecting the operation of the clinic.

## **Control Systems**

There are no control issues affecting the operation of the clinic.

## **7.4. SUMMARY OF ELECTRICAL FINDINGS**

The facility electrical system wiring is in poor condition and has serious code violations that should be completely replaced:

- ✦ Replace all NM cable installed into patient care areas.
- ✦ The emergency illumination and "Exit" signs are not installed per NEC requirements and need to be replaced.
- ✦ Working space requirements in front of the branch circuit panel needs to be provided.
- ✦ The feeders routed from the service entrance equipment to the branch circuit panels are not adequately sized for the over current protection and not routed or protected correctly.

Provide a complete replacement of the electrical service, transfer switch, feeder into the facility, new main disconnect and a new MDP inside the facility.

- ✦ The ground conductor to the metallic water piping should be investigated and added if not installed.
- ✦ Locate and correct the deficiency causing electrical current to flow on the grounding conductor if applicable.

## **7.5. RECOMMENDATIONS**

The short term recommendation is to perform the various fixes to provide a suitable clinic for the next few years while looking towards a long term recommendation of building a new clinic to relocate the facility outside of the airport's runway restriction zone. Following are descriptions of the two Proposed Plan renovations.

\* Deficiencies, as listed in the Deficiency Table, which are being corrected are referenced in brackets ( i.e. {Aco01}) preceding the correction.

### **7.5.1. Proposed Plan: Scheme 1**

It is possible to correct the construction, ADA and life safety code deficiencies of the clinic through only minor alterations and construction. These alterations will not effectively solve several of the layout, functional or privacy issues of the clinic, but will create a safer, more accessible environment. {Aco15} To ensure a safer path of exit, especially in emergencies, the two exit doors have been changed to swing out. {Aco38} An arctic entry has also been attached to the exterior of the building for the street-side exit. {Aco13} All the exterior doors, with the exception of the Ambulance Bay door, will be replaced with painted insulated hollow-core metal doors and frames. {Aco15} Additionally, the two exit doors will have emergency panic hardware installed. {Aco19} To ensure ADA compliant doorways, the door swing in the new Office [RM#102] has been reversed and casework in the Office [RM#103] and Exam [RM#104] has been altered.

{Aco27, Aco31} To address the other ADA deficiencies, the two rest rooms have been redesigned into one, fully ADA compliant, restroom (HC RR [RM#112]) and a storage closet (CLO. [RM#113]); and the shower in Trauma [RM#117] has been replaced with an ADA compliant roll-in shower. {Aco24} To provide more privacy to x-ray patients, the accordion door has been removed and replaced with a hard wall with a normal door. {Aco22} This ensures a visual and auditory barrier, as well as a safer flow of traffic, between X-Ray [RM#109] and the Waiting Room [RM#106]. {Aco28, Aco30} Moving the washing machine in Laundry. [RM#115] and adding a door to Mech. [RM#116] allows those two rooms to function more effectively. {Aco34}

The final functional change has been to install guardrails in the Ambulance Bay [RM#118] around the platform and ramps. Along the middle of the platform, the guardrail will be of a removable chain type, to provide an easy means of opening the guardrail to unload the ambulance.

### **7.5.2. Proposed Plan: Scheme 2**

By reorganizing the flow of spaces, and with only minor construction, the clinic's functionality can be greatly improved, by creating distinct public and private areas. {Aco15} To make the

flow of exit traffic, especially in an emergency, more intuitive; both exit doors have been reconfigured to swing outwards. {Aco38} A new arctic entry [RM#121] has been installed at the street-side exit to provide a weather lock. {Aco01} Also, both exits have canopies installed over them, to provide protection from rain and snow. {Aco13} The two exit doors, as well as the Storage/Generator [RM#119] door, will be replaced with painted insulated hollow-core metal doors and frames with proper seals to prevent wind and water entering the building.

{Aco22, Aco24} The former waiting room, with the small computer station, has been moved near the street-side entrance, so that clinic patients will not have to be exposed to waiting or visiting patrons. This provides patients and employees with more privacy, especially after the installation of two Corridor [RM#100] walls with doors to further create a sound and vision barrier. The former ward has been changed into an Office [RM#102] to accommodate incoming patients and clinic visitors. The wall between the new Waiting Room [RM#101] and Office has been moved to afford a larger space for the Waiting Room. {Aco27} The door to the Lab [RM#114] has been moved to the new private side of the clinic. This not only assists in keeping clinic activities away from the Waiting Room, but also creates space to enlarge one of the rest rooms (HC RR [RM#113]) to fulfill ADA requirements. Since only this restroom is ADA compliant, it has been kept in the public Corridor so it can be used by those in the private areas of the clinic as well as by those in the Waiting Room.

The former ward, which was also being used as a break room, has been relocated to the back of the clinic. {Aco20} The new Ward [RM#105] and new Break rooms [RM#106] are still in close proximity, but now physically separated providing functional sleeping quarters for either overnight patients or visiting professionals. {Aco19} To ensure ADA compliant doorways, the door swing in the new Office has been reversed and casework in the Office [RM#103], Exam [RM#104] and Lab [RM#114] has been altered. {Aco21} The Exam 1 [RM#04] door swing has also been reversed so it no longer obstructs the doorway to the new Break room.

{Aco24} The X-ray [RM#109], with the control box, has been enclosed with a normal door to provide more privacy and safety. The removal of the accordion door also provides the access to the new Lab doorway. Appliance and fixture problems have been corrected in the Trauma [RM#117] and Laundry [RM#115] rooms. {Aco31} In Trauma a new, ADA compliant roll-in shower has replaced the traditional tub/shower. {Aco28} In Laundry the washing machine has been slightly moved to allow the door to work properly. {Aco30} Also, in the Laundry a small door has been installed to keep the mechanical equipment enclosed and separate. {Aco34} The final functional change has been to install guardrails in the Ambulance Bay [RM#118] around the platform and ramps. Along the middle of the platform, the guardrail will be of a removable chain type, to provide an easy means of opening the guardrail to unload the ambulance. All of these changes only slightly modifies the current clinic, but in doing so, creates beneficial functional enhancements.

### **7.5.3. Cost Estimate and Summary**

Due to the conceptual nature of the two schemes delineated above and the rough order of magnitude method of cost estimating used, the two schemes can be seen as roughly generating the same cost. With the exception of minor partition wall differences both schemes share the same issues addressed in the deficiency table. Selection of either scheme is a matter of functional preference and should be determined by the end user. Using a construction budget of the “conservative” total cost shown below we recommend that an architectural and

engineering consultant be engaged to prepare construction documents to repair all deficiencies prioritized by life safety, operations and maintenance then functional issues.

• Architectural/Structural Deficiencies .....	\$134,680
• Mechanical Deficiencies.....	\$34,800
• Electrical Deficiencies .....	\$27,800
• Project Cost Factor @ 28% =.....	\$55,238
Construction Contingency	10%
Construction Administration	8%
Design Fees	10%
<b>Total Renovation Cost .....</b>	<b>\$252,518</b>

## **APPENDIX A: DEFICIENCY TABLE & PHOTO LOG**

<b>Architectural Deficiencies</b>			
<b>Item #</b>	<b>Code</b>	<b>Deficiency</b>	<b>Suggested Resolution &amp; Rough Order of Magnitude Cost Estimate</b>
Aco01	01	No canopy over building entrances.	Construct canopies over both exterior door approaches. \$20,000
Aco02	01	Drop off from concrete walk outside of Storage Room [119] door.	Remove concrete stoop, re-grade as required. Provide new concrete stoop \$1,000
Aco03	03	Exterior wall penetrations (used and unused) not properly sealed or patched.	Patch unused wall penetrations and properly seal used wall penetrations. \$100
Aco04	04	Exposed rebar.	Patch and seal. \$200
Aco05	04	Crack/shift in foundation system.	Patch and seal. \$200
Aco06	04	Concrete broken / rebar support exposed on building corner.	Patch and seal. \$200
Aco07	03	Crumbling retaining wall.	Remove existing retaining wall. Re-grade slope to even transition. \$500
Aco08	01	No railing along concrete walk to building entrance at drop off.	Install pipe guardrail and handrail (apprx 10 Ft.). \$500
Aco09	01	No landing at top of ramp.	Reconfigure top of ramp to include a flat landing in front of the door. See Proposed Plans A4 & A4. \$1000
Aco10	10	Rusting metal roof fascia.	Sand, seal and paint. \$150
Aco11	10	No edge flashing on metal roof.	Install edge flashing on metal roof. \$150
Aco12	10	No gutters.	Install gutters and downspouts. \$2000
Aco13	03	All exterior doors (except overhead door) are rusted and lack proper seals. Hardware is not ADA.	Replace exterior doors, frames and hardware with new fiberglass doors and frames. (3) @ \$1,500 ea. = \$4,500
Aco14	02	All interior doors lack ADA compliant hardware.	Install ADA compliant hardware on all doors. (13) @ \$300 ea. = \$3,900
Aco15	01	Exterior doors lack panic hardware and have improper swing direction. Rooms [100] and [107].	Reconfigure doors to swing out and install panic hardware. See Proposed Renovations A6 & A7. Costs for this deficiency are included in Aco13.
Aco16	03	Missing wall base in Corridor [100].	Replace missing rubber wall base. Costs

			for this deficiency are included in Aco25.
Aco17	03	Unused interior wall penetrations not patched. Room [101].	Patch unused wall penetration. \$100
Aco18	01	Rug prevents proper door operation. Room [101].	Remove rug to allow proper door operation. \$0
Aco19	02	Objects/casework preventing proper door clearance for ADA compliance. Rooms [101] [102] [103] [104] and [114].	Move obstructing objects or partially remove casework to provide ADA compliant door approach clearances. \$0
Aco20	01	Same room being used for Ward and Break room. Room [102].	Redefine spaces to provide a separate Ward room. See Proposed Plans A4 & A5.
Aco21	01	Door swing of Exam [104] obstructs access to Office [105].	Reconfigure door to swing inwards. See Proposed Plans A4 & A5. \$150
Aco22	01	Seating in Waiting Room [106] obstructs opening to X-ray [109].	Install solid partition behind seating and decrease opening width. See Proposed Plans A4 & A5. \$2,500
Aco23	01	Switch in Exit [107] for exterior lights hidden by shelving.	Remove shelving. \$100
Aco24	03	No privacy for patients going to, or in X-ray [109].	Enclose X-ray [109] with controls in a room with a normal door. \$4,000
Aco25	03	Damaged vinyl tile flooring.	Remove tile vinyl tile flooring throughout and replace with welded seam vinyl flooring with integral cove base. \$15,000
Aco26	01	Pharmacy [111] door and cabinets unlocked.	Provide proper security for pharmacy. Costs for this deficiency are included in Aco14.
Aco27	02	Insufficient room for ADA compliant turn radius in HC RR [112].	Reconfigure rest room layouts [112] and [113]. See Proposed Plans A4 & A5. \$5000
Aco28	03	Washing machine in Laund. [115] obstructing door from proper operation.	Relocate washing machine. See Proposed Plans A4 & A5. \$0
Aco29	01	Linens on floor in Laund. [115] between washing machine and dryer.	Provide storage location for laundered and unlaundered linens. \$0
Aco30	01	No door between Laund. [115] and Mech. [116].	Install new door, frame and hardware. \$1000
Aco31	02	Shower in Trauma [117] not ADA compliant.	Install ADA compliant shower. \$800



Aco32	03	Non-working seals on door between Corridor [100] and Ambulance Bay [118].	Replace door seals. \$100
Aco33	01	Door threshold between Corridor [100] and Ambulance Bay [118] exceeds ½".	Install new threshold. \$150
Aco34	01	No guardrails on ramps or platform in Ambulance Bay [118].	Install guardrails and handrails where required. Install removable guardrail for ambulance unloading. \$1000
Aco35	01	Objects preventing proper operation of exterior door in Storage/Generator [119].	Provide proper storage. \$0
Aco36	01	Only light switch in Storage/Generator [119] by exterior door.	Install new light switch inside of the door between Storage/Generator [119] and Ambulance Bay [118]. \$200
Aco37	01	Clutter and improper storage in several rooms and Corridor [100].	Relocate unnecessarily stored objects from the corridor and use more organized storage. \$0
Aco38	03	No Arctic Entry at street entrance.	Install Arctic Entry. See Proposed Plans A4 & A5. \$4,000
Aco39	02	Missing protection around sink drain pipes in HC RR [112] and RR [113].	Install pipe protection. \$50
Aco40	02	Sink hardware in Lab [114] not ADA compliant.	Replace hardware with ADA compliant hardware. \$250
Aco41	03	During a renovation project other areas besides the deficiency are affected. This item encompasses general renovation repairs for all issues including painting, trim work, cleaning etc.	Costs associated with this deficiency is estimated at \$20/SF x 3,294 SF. \$65,880

**Mechanical Deficiencies**

<b>Item #</b>	<b>Code</b>	<b>Deficiency</b>	<b>Suggested Resolution</b>
Mco01	12	The clinic does not have operable windows nor is there any ventilation system in the clinic to provide ventilation air to the clinic spaces as required by code (IBC section 1202).	Provide a new forced air furnace (1,500 cfm at 125,000 Btuh) with an outside air connection so that ventilation air can be introduced into the system. Provide a new ductwork supply air and return air system above the accessible ceiling with new room ceiling diffusers (10 rooms total). The existing furnace and ductwork are in need of replacement even without the ventilation issue above. \$25,000
Mco02	12	The existing restroom exhaust fans are	Connect a new 6"ø duct to each exhaust

		operational, but the fans are ducted into the attic space and not ducted outside as required by code (IMC section 501.3).	fan (2 total) and route to new roof caps with backdraft dampers. \$750
Mco03	02	There is limited exhaust air for the darkroom as required by code (IMC section 502.1).	Remove the existing exhaust fan and provide a new exhaust fan rated at 50 cfm and 0.15" s.p. Extend a new 5"Ø exhaust air duct up through the attic to a roof cap with backdraft damper. \$750
Mco04	12	There is no exhaust air for the janitor's closet or laboratory as required by code (IMC section 502.1).	Provide two ceiling mounted exhaust fans rated at 50 cfm and 0.15" s.p. Connect a 5"Ø duct to each fan and route to individual roof caps with backdraft dampers. \$1,500
Mco05	02	The existing clothes dryer does not have an exhaust duct to the outside as required by code (IMC section 504.1).	Connect a 4"Ø duct to the dryer exhaust connection and route to the outside wall (approx.15 ft. away). \$500
Mco06	02	The existing emergency generator does not have any outside air openings for combustion air or ventilation of the room when it is operating as required by code (UMC section 403).	Provide a 24"x24" wall louver and motor operated damper in the outside wall. The motor operated damper shall be wired to open when the generator is operating and close when the generator is off. \$2,000
Mco07	12	The existing water heater is undersized and the temperature controls do not work as required by code (UPC section 506.2).	Provide a new 50 gallon, 9 KW (2 elements at 4.5 KW each) electric water heater and reconnect to the existing ¾" domestic hot and cold water piping with dielectric unions. \$3,500
Mco08	12	The furnace is installed without the proper clearances for inspections, maintenance, and making repairs difficult (IMC section 306.1 and 1004.3).	Replace the furnace and ductwork per comment M01. Provide proper clearances for inspections, maintenance, and repair. The cost for this deficiency is covered by (Mco01).
Mco09	02	Severe corrosion on the furnace stack may cause premature failure of this system. The stack cap on the roof is also missing.	Replace the 6"Ø all fuel chimney from the furnace up 15 feet to a new stack cap on the roof. Also provide a new barometric damper at the furnace. Replace the furnace and ductwork per comment M01. The cost for this deficiency is covered by (Mco01).
Mco10	02	There currently is one combustion air openings for the furnace installed and not according to code (IMC section 703).	Provide one additional combustion air opening (6"Ø) ducted from the outside wall. This combustion air opening is to be located 12" from the floor. \$300
Mco11	12	The restroom has been provided with plumbing fixtures that do meet the ADA	Provide ADA and UPC approved barrier free devices at all existing locations.

		codes or UPC Table 14-1 for barrier free fixtures.	Included are grab bars for one water closet. Also provide an ADA and UPC approved pipe insulation kit for the waste, hot and cold water connections under the lavatories (2 total). The costs for these deficiencies are covered in (Aco27 and Aco39).
Mco12	02	The fuel oil storage tank is located adjacent to the building and at a minimum of 5 ft. as required by code (IFC 2206.2.3). The 1,100 gallon tank does not meet IFC requirements for piping (IFC section 3403.6), venting (IFC section 3404.2.7), and valving (IFC section 3403.6).	Provide a two 4" emergency vents, two 2" vent pipe extension to terminate 12 ft. above grade, and install ½" isolation valve and flexible connection in the fuel oil supply and return line sets (2 sets total). \$500
<b>Electrical Deficiencies</b>			
<b>Item #</b>	<b>Code</b>	<b>Deficiency</b>	<b>Suggested Resolution</b>
Eco01	13	Existing service main disconnect switch has open Knock Out in bottom of the utility side. NEC 112-12(a).	Add 2" Knock Out seal. \$50
Eco02	13	<p>Branch Circuit panels:</p> <p>A majority of the wiring is installed in NM type cable (This is in violation of the NEC 517 for patient care areas if these cables are extended to any space where patient care occurs). Wiring is entering through a gutter below the panels.</p> <p>Working clearance in front of the main panel and the adjacent panel is not provided per NEC requirements due to storage. NEC 110.26.</p> <p>Feeder Conductors terminated on a 200 Amp circuit breaker sized at #2 are not adequate for each of the panels. NEC 310.16.</p> <p>Neutral is routed through an open knock out between the panels with no raceway and not routed with the phase conductors.</p> <p>No ground bus is installed in the panels are required by NEC 517.</p> <p>Panel Schedule is not accurate.</p>	<p>Replace all wiring that is installed in NM type cable that is routed to patient care areas. Correct wiring that enters the back of the panel with no connectors (this may require major rewiring of the building). Provide 2" K.O. seal in the bottom of the panel. Provide circuit breaker blanks for several poles. Revise panel and storage installation to provide working clearance in front of the two main branch circuit panels. \$20,000</p>
Eco03	13	Exterior lighting fixture and generator transfer switch raceways are not	Provide support for 5 flexible raceways.

		supported below the transfer switch. NEC 350.30.	\$50
Eco04	13	Provide cover plates for existing junction boxes around the facility with no cover allowing energized conductors to be out of the enclosure. NEC 110.12.	Provide blank covers for all open junction boxes. Assume 5 are required. \$50
Eco05	13	GFCI protection for receptacles located adjacent to sinks are not provided.	Provide GCFI protection for each receptacle located near sinks. This is not a code requirement but considered good design practice. Assume 8 are required. \$800
Eco06	2	One single station smoke detector is installed. No fire alarm system is installed.	The inspection criteria requires a fire alarm system however for this facility it appears a fire alarm system is not required by code provided no one sleeps at the clinic. \$0
Eco07	2	No illuminated exit signs are installed.	Provide illuminated exit signs per IBC requirements. Assume 14 units are required. \$2,800
Eco08	2	Emergency Lighting: 8 additional units should be added for egress illumination per IBC requirements. One existing unit is not functional.	Provide new units connected to the local lighting circuit no more than 20 ft apart through out the facility. Assume 8 units are required. \$2,000
Eco09	13	It appears that approximately 10 fixtures are not functional due to lamp or ballast deficiencies. Approximately 8 fixtures are missing the diffusers.	Repair each fixture that is not functional. \$2,000
Eco10	13	Open wiring was installed for connection at the well head. NEC 310.13.	Provide raceway connection to the well head. \$50



**Aco01**



**Aco02**



**Aco03**



**Aco04**





**Aco05**



**Aco06**



**Aco07**



**Aco08**



**Aco09**



**Aco10**



**Aco11**



**Aco12**



**Aco13**



**Aco14**



**Aco15**



**Aco16**





**Aco17**



**Aco18**



**Aco19**



**Aco20**



Aco21



Aco22



Aco23



Aco25



**Aco26**



**Aco27**



**Aco28**



**Aco30**



**Aco31**



**Aco32**



**Aco33**



**Aco34**





Aco35



Aco36



Aco37



Aco38



**Aco39**



**Aco40**



Eco01



Eco02

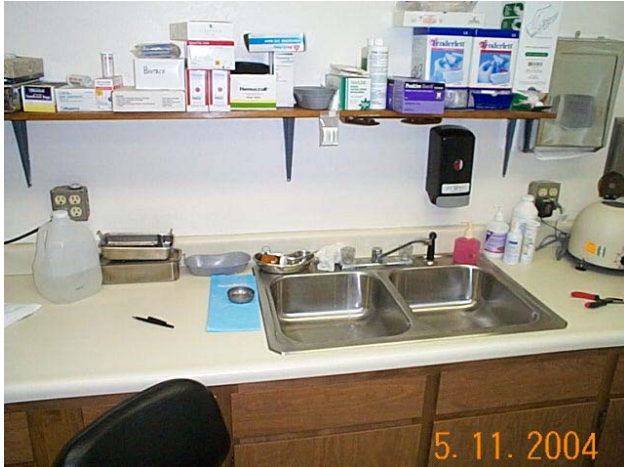


Eco03



Eco04





**Eco05**



**Eco06**



**Eco07**



**Eco08**





**Eco09**



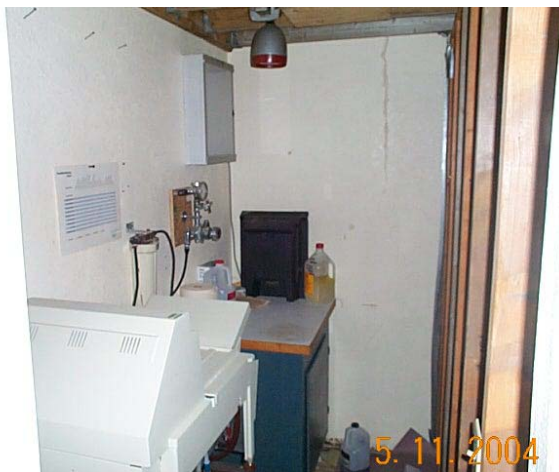
**Eco10**



**Mco01**



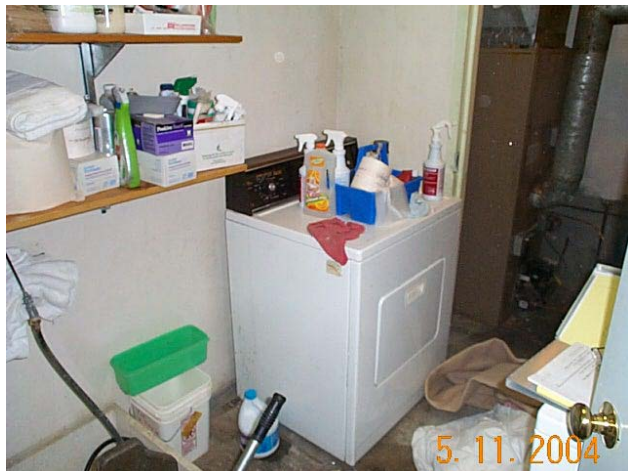
**Mco02**



**Mco03**



**Mco04**



Mco05



Mco06



Mco07



Mco08





Mco09



Mco10



Mco11



Mco12

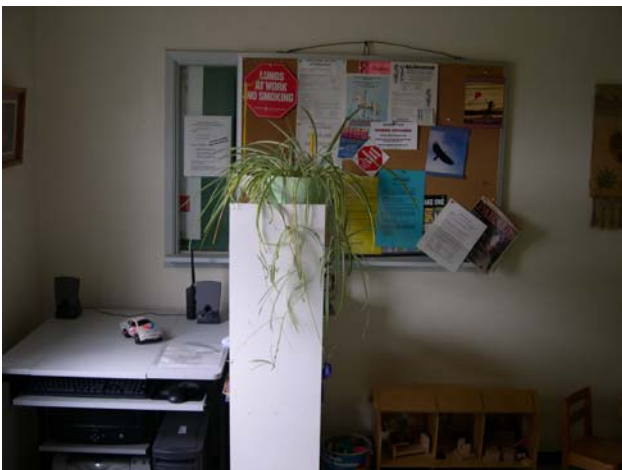
## **APPENDIX B: GENERAL PHOTOS**



**AGE01  
Airstrip Elevation**



**AGE02  
Server Room**



**AGE03  
Computer Station**



**AGE04  
Exam Room**



**AGE05  
Office**



**AGE06  
Ward / Break Room**



**AGE07  
Main Corridor**



**AGE08  
Laundry Room**





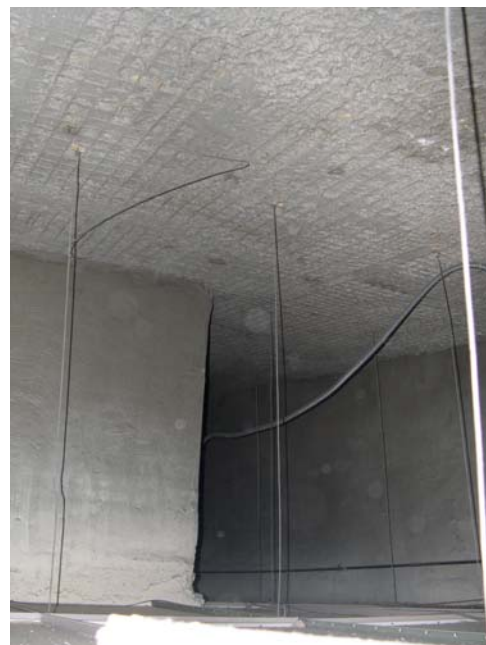
**AGE09  
Lab**



**AGE10  
Trauma Room**



**AGE11  
Storage**



**AGE12  
Open Ceiling Space**





**AGE13  
Roadside Elevation**



**AGE14  
Side Elevation**



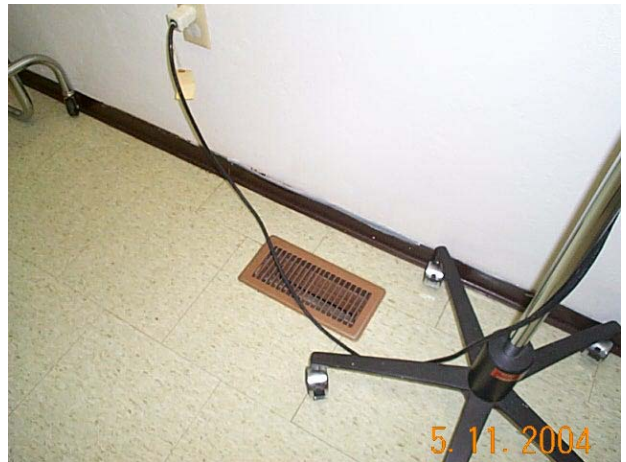
**MGE01  
Furnace Assembly**



**MGE02  
Furnace Stack Through Roof**



**MGE03  
Furnace Burner Assembly**



**MGE04  
Supply Air Floor Grille**



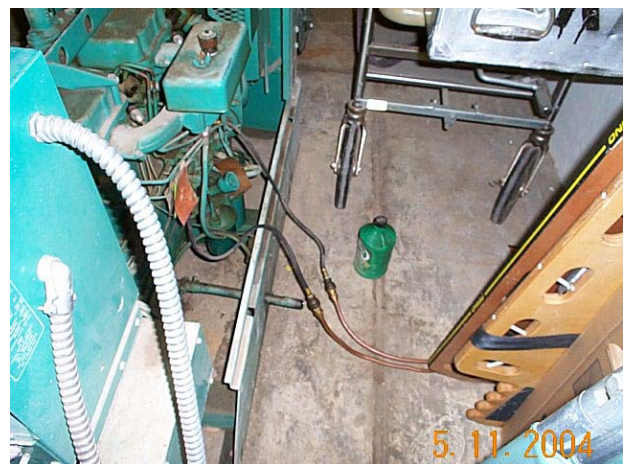
**MGE05  
Electric Water Heater**



**MGE06  
Ceiling Exhaust Fan**



**MGE07  
Garage Unit Heater**



**MGE08  
Generator Fuel Piping**





**MGE09  
Bathroom Fixtures**



**MGE10  
Janitor's Sink**



**MGE11  
Emergency Room Sink**



**MGE12  
Exterior Fuel Tank**



**EGE01**  
Electrical and Telephone Service



**EGE02**  
Service Panel with Cover Removed



**EGE03**  
Existing Generator



**EGE04**  
Transfer Switch





EGE05  
Interior Branch Circuit Panels



EGE06  
Electrical Panel Interior Wiring



EGE07  
X-Ray Disconnect



EGE08  
Well Pump Power Connection



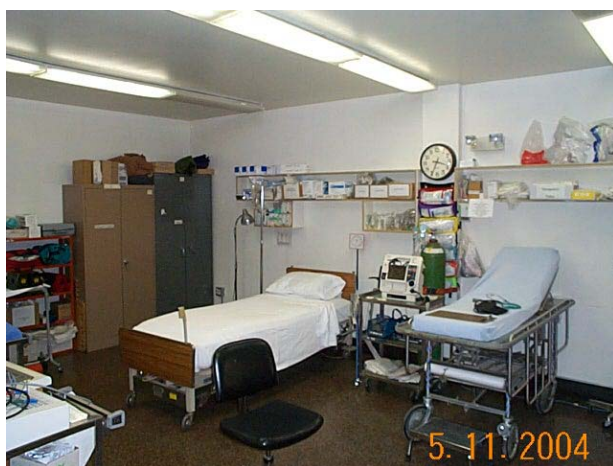
EGE09  
Electric Water Heater



EGE10  
Antenna Mast



EGE11  
Typical Exam Room Receptacles



EGE12  
Typical Interior Lighting



**EGE13**  
**Typical Emergency Lighting**



**EGE14**  
**Exterior Lighting**



**EGE15**  
**Single Station Smoke Detectors**



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